

of each side arm can contact a stopping means and the inside face of the mounting bracket simultaneously

(e) the fourth pivot point is disposed beneath the first pivot point, and the third pivot point is disposed beneath the second pivot point;

and

(f) the articulating arm mechanism may be rotated relative to the desk by means of a swivel mechanism attached to the mounting bracket in combination with a mounting track to which the mounting bracket is slidably connected, either directly or indirectly.

54. (Amended) An articulating arm mechanism for connecting a shelf to a desk comprising:

- (a) a mounting bracket, the mounting bracket having a front end and a back end, the front end being closer to the front of the desk than the back end;
- (b) an upper arm pivotally connected to the mounting bracket at a first pivot point, the rear of the upper arm being defined as the end of the upper arm closest to the mounting bracket;
- (c) a shelf bracket pivotally connected to the upper arm at a second pivot point; the front of the upper arm being defined as the end of the upper arm closest to the shelf bracket;
- (d) a side arm pivotally connected to the shelf bracket at a third pivot point; the side arm being further attached to the mounting bracket at a fourth pivot point; the side arm having within it a first opening such that the side arm can be pivoted relative to the mounting bracket about the fourth pivot

point and can be reciprocatingly moved relative to the fourth pivot point; the front of the side arm being defined as the end closest to the third pivot point, and the rear of the side arm being defined as the end opposite from the front;

- (e) a stopping means, the stopping means having a first side facing towards the rear of the side arm, such that when the side arm moves horizontally relative to the fourth pivot point, the rear of the side arm can contact the first side of the stopping means;

wherein the side arm and the upper arm are not parallel to each other; and further wherein the position of the stopping means are such that regardless of the angle of the side arm to the horizon, the angle of the shelf bracket relative to horizontal remains constant.

55. (Amended) An improved auxiliary shelf mechanism including an auxiliary shelf having a top surface and a bottom surface, and a linkage to attached the auxiliary shelf to a desk so that the auxiliary shelf may be moved horizontally and/or vertically relative to the desk, wherein the improvement comprises attaching the linkage to the auxiliary shelf at a substantially interior point of said auxiliary shelf in a manner effective to prevent the auxiliary shelf mechanism from extending below the bottom surface of the auxiliary shelf.

57. (Amended) An improved auxiliary shelf mechanism including an auxiliary shelf having a top surface and a bottom surface, and a linkage to attached the auxiliary shelf to a desk so that the auxiliary shelf may be moved horizontally and/or vertically relative to the desk, wherein the improvement comprises attaching the linkage to the auxiliary shelf so that no part of the auxiliary shelf mechanism extends below the bottom surface of the auxiliary shelf, wherein the linkage is a non-parallelogram linkage.

61. (Twice Amended) A mechanism for mounting a support for an art device on a base,  
comprising:

- (a) a mounting member for attachment to said base;
- (b) a linkage having a first end for mounting said support and a second end pivotally connected to said mounting member for permitting vertical movement of said support relative to said mounting member between lower and upper positions, said linkage including:
  - (i) an upper link;
  - (ii) a lower link;
  - (iii) a first end link attached to said support;
  - (iv) a second end link for attachment to said base;
  - (v) a plurality of pin joints; and
  - (vi) a crank and slider type joint;

wherein one of said upper and lower links is coupled to said first and second end links by pin joints at each end and the other of said upper and lower links is coupled to said first and second end links at one end by a pin joint and at the other end by said crank and slider joint; and

- (c) a stopping means for releasably restraining said support in a desired position intermediate to said lower and upper positions comprising:
  - (i) an extension of said link having a crank and slider joint having a first engagement surface; and
  - (ii) a second engagement surface affixed to either said base or support.

66. (Twice Amended) A mechanism according to claim 64, wherein the force of gravity tends to swing said linkage downwardly about the pin joint coupling said upper link to said second end

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link to force said first engagement surface into engagement with said second engagement surface.

d19 68. (Twice Amended) A mechanism for mounting a support for an art device on a base,

comprising:

- (a) a mounting member for attachment to said base;
- (b) a linkage having a first end for mounting said support and a second end pivotally connected to said mounting member for permitting vertical swinging movement of said support relative to said mounting member between lower and upper positions,
  - § (i) said linkage including an upper link, a lower link, a first end link, and first, second, and third pivot connections having parallel axes, wherein
    - (1) said upper link has opposite ends pivotally coupled to said first end link and said mounting member by said first and second pivot connections;
    - (2) one end of said lower link is pivotally coupled to said first end link by said third pivot connections, and
    - § (3) said second end of said linkage is pivotally connected to said mounting member solely by said second pivot connection;
  - (ii) at least one second link member selected from the group consisting of a second upper link and a second lower link, said second link member being disposed away from the periphery of said support, and
- (c) a stopping means for releasably restraining said support in a desired position intermediate said lower and upper positions,

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- (i) said stopping means including a first engagement surface on said linkage and a second engagement surface of said mounting member, said first engagement surface being normally gravitationally biased into engagement with said second engagement surface for releasably restraining said support against downwardly directed vertical swinging movement, and
  - (ii) said first engagement surface is released from engagement with said second engagement surface by applying an upwardly directed manual force to said support.

~~69. (Amended) An improved auxiliary shelf mechanism for positioning an auxiliary shelf, including a means for attaching the auxiliary shelf to a desk so that the auxiliary shelf may be movably positioned relative to the desk, wherein the improvement comprises:~~

~~an articulating arm mechanism comprising:~~

- ~~a) a mounting bracket, the mounting bracket having a front end and a back end;~~
- ~~b) a first arm having a rear portion and a front portion, the rear portion of the first arm being pivotally connected to the mounting bracket;~~
- ~~c) a shelf bracket connected to the front portion of the first arm;~~
- ~~d) a second arm having a front portion and a rear portion, the front portion of the second arm is pivotally connected to the shelf bracket and the rear portion of the second arm being connected to the mounting bracket; and~~
- ~~e) a stopping surface associated with the mounting bracket such that movement of the second arm is restricted when the second arm is translated;~~

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77. (Amended) wherein the first and second arms are not parallel to each other.

d20 77. (Amended) The auxiliary shelf mechanism of claim 69, further comprising a spring for biasing either the first or second arm.

78. (Amended) An improved auxiliary shelf mechanism for positioning an auxiliary shelf, including a means for attaching the auxiliary shelf to a desk so that the auxiliary shelf may be movably positioned relative to the desk, wherein the improvement comprises:

an articulating arm mechanism comprising:

- (a) a mounting bracket, the mounting bracket having a front end and a back end;
- (b) a first arm having a rear portion and a front portion, the rear portion of the first arm being pivotally connected to the mounting bracket;
- (c) a shelf bracket having a shelving surface for supporting an auxiliary shelf thereon, the shelf bracket being away from the outer side edges of said shelving surface and being pivotally connected to the front portion of the first arm by at least one pivot positioned above the shelving surface;
- (d) a second arm having a front portion and a rear portion, the front portion of the second arm being pivotally connected to the shelf bracket and the rear portion of the second arm being connected to the mounting bracket; and
- (e) a stopping surface being associated with the mounting bracket such that movement of the second arm is restricted when the second arm is translated.

79. (Amended) The auxiliary shelf mechanism of claim 78, wherein the first arm is connected to the mounting bracket by a first pivot and to the shelf bracket by a second pivot and further wherein the second arm is connected to the shelf bracket by a third pivot and to the mounting bracket by a sliding joint.

93. (Amended) An improved auxiliary shelf mechanism for positioning an auxiliary shelf, including a means for attaching the auxiliary shelf to a desk so that the auxiliary shelf may be movably positioned relative to the desk, wherein the improvement comprises:

an articulating arm mechanism comprising:

- (a) a mounting bracket, the mounting bracket having a front end and a back end;
  - (b) a first arm having a rear portion and a front portion, the rear portion of the first arm being pivotally connected to the mounting bracket;
  - (c) a shelf bracket having a shelving surface for positioning a keyboard on top thereof, the shelf bracket being pivotally connected to the front portion of the first arm by at least one pivot positioned above the shelving surface;
  - (d) a second arm having a front portion and a rear portion, the front portion of the second arm being pivotally connected to the shelf bracket and the rear portion of the second arm being connected to the mounting bracket;
  - (e) a stopping surface associated with the mounting bracket such that movement of the second arm is restricted by the stopping surface when the second arm is translated;
  - (f) said means for attaching the auxiliary shelf to a desk comprises a mounting track; a swivel mechanism associated with the mounting bracket for rotating the articulating arm mechanism relative to the desk; the swivel mechanism positioned in combination with the mounting track to which the mounting bracket is slidably connected; and
  - (g) a spring for biasing either the first or second arm;
- wherein the first and second arms are not parallel to each other.

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cont 94. (Amended) The auxiliary shelf mechanism of claim 92, wherein the first arm is connected to the mounting bracket by a first pivot rod and to the shelf bracket by a second pivot rod and further wherein the second arm is connected to the shelf bracket by a third pivot rod.

d22 96. (Amended) An improved auxiliary shelf mechanism for positioning an auxiliary shelf; said mechanism including at least two linkage arms connecting a mounting bracket capable of being connected to a desk and an auxiliary shelf bracket having a shelving surface for an auxiliary shelf and the linkage arms connect to said shelf bracket away from at least one of the side edges of said shelving surface, wherein the improvement comprises having at least one pivot connection between one of said linkage arms and the shelf bracket above the shelving surface.

Kindly add new claims 97 - 108 as follows:

d23 97. (New) An improved auxiliary shelf mechanism including an auxiliary shelf having a top surface, a bottom surface, and two side edges, and a linkage to attached the auxiliary shelf substantially away from the side edges of said auxiliary shelf to a desk so that the auxiliary shelf may be moved horizontally and/or vertically relative to the desk, wherein the improvement comprises attaching the linkage to the auxiliary shelf so that substantially all of the auxiliary shelf mechanism is above the bottom surface of the auxiliary shelf.

98. (New) The improved auxiliary shelf mechanism of claim 96 in which said linkage is a parallelogram linkage.

99. (New) An improved auxiliary shelf mechanism including an auxiliary shelf having a top surface, a bottom surface, and two side edges, and a linkage to attached the auxiliary shelf to a



desk so that the auxiliary shelf may be moved horizontally and/or vertically relative to the desk, wherein the improvement comprises attaching the linkage to the auxiliary shelf:

- (a) substantially away from the side edges of said auxiliary shelf; and
- (b) the connection points of said linkage to said auxiliary shelf mechanism are substantially above the bottom surface of the auxiliary shelf.

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100. (New) The improved auxiliary shelf mechanism of claim 99 in which said linkage attaches to said auxiliary shelf near the middle of said shelf.

101. (New) A computer support arm assembly comprising, in combination:

- (a) a first bracket member for attachment to a work support;
- (b) a second bracket member for support of a keyboard;
- (c) a first linkage arm pivotally connected to the first bracket member at one end and to the second bracket member at its opposite end;
- (d) a second linkage arm pivotally connected to the first bracket member at one end and to the second bracket member at its opposite end, for pivotal movement about an axis said second linkage member further connectable to the first linkage member along an elongated connection path corresponding to the pivot connection of the second linkage member to the second bracket member; and
- (e) a locking mechanism including a wedge block on the second bracket member for at least partially frictionally engaging the linkage members and second bracket member simultaneously to retain the second bracket member in a fixed orientation, said locking mechanism comprising a surface of the second bracket member inclined with respect to the axis and an opposed inclined surface of the wedge block supported on the second

bracket member, said inclined surfaces slidable with respect to each other to lock or release the locking mechanism.

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102. (New) A support arm assembly for a computer keyboard mounted on a work support comprising, in combination: a first bracket member for attachment to a work support; a second bracket member for attachment to a keyboard; a first arm with opposite ends pivotally connected at to the first bracket and member and second bracket member respectively; a second arm with opposite ends pivotally connected to the first bracket member and the second bracket member respectively; one of said pivotal connections of the second arm to one of the first and second bracket members including first and second slidably engaged wedge members affixed respectively to the said one of said bracket members and to the second arm, said first and second wedge members slidably engaged and having a first locked position compressing the bracket member and second arm together and a second unlocking position releasing compression of the bracket member and second arm.

103. (New) An improved auxiliary shelf mechanism for positioning an auxiliary shelf; said mechanism including at least two linkage arms connecting a mounting bracket capable of being connected to a desk and an auxiliary shelf bracket having a shelving surface for an auxiliary shelf, wherein the improvement comprises having a non-parallelogram linkage with at least one pivot connection between one of said linkage arms and the shelf bracket above the shelving surface.

104. (New) The improved auxiliary shelf mechanism of claim 96 wherein each of said linkage arms connects to said shelf bracket away from the side edges of said shelving surface.

105. (New) A mounting mechanism for mounting a support for an art device on a base, comprising:

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- (a) a mounting member for attachment to said base;
  - (b) a linkage having a first end for mounting said support and a second end pivotally connected to said mounting member for permitting vertical swinging movement of said support relative to said mounting member between lower and upper positions,
    - (i) said linkage including an upper link, a lower link, a first end link, and first, second, and third pivot connections having parallel axes, wherein
      - (1) said upper link has opposite ends pivotally coupled to said first end link and said mounting member by said first and second pivot connections;
      - (2) one end of said lower link is pivotally coupled to said first end link by said third pivot connections, and
      - (3) said second end of said linkage is pivotally connected to said mounting member solely by said second pivot connection;
    - (ii) said linkage being a non-parallelogram linkage, and
  - (c) a stopping means for releasably restraining said support in a desired position intermediate said lower and upper positions,
    - (i) said stopping means including a first engagement surface on said linkage and a second engagement surface of said mounting member, said first engagement surface being normally gravitationally biased into engagement with said second engagement surface for releasably

restraining said support against downwardly directed vertical swinging movement, and

- (ii) said first engagement surface is released from engagement with said second engagement surface by applying an upwardly directed manual force to said support.

106. (New) An improved auxiliary shelf mechanism including an auxiliary shelf having a top surface and a bottom surface, and a linkage to attached the auxiliary shelf to a desk so that the auxiliary shelf may be moved relative to the desk, wherein the improvement comprises attaching the linkage to the auxiliary shelf:

- A. at a substantially centralized point of said auxiliary shelf; and
- B. above the bottom surface of the auxiliary shelf.

107. (New) The improved auxiliary shelf mechanism of claim 96 in which said linkage is a non-parallelogram linkage.

108. (New) The improved auxiliary shelf mechanism of claim 55 in which said linkage comprises an elongated downwardly opening channel-shaped member.

#### REMARKS

While having withdrawn the prior grounds of rejection, the Office Action of March 4, 2002 objected to the specification, drawings, and claims of the above-identified patent application. In addition, the Office Action rejected claims as indefinite, anticipated and obvious. In view of the amendments made herein, the Applicants respectfully submit that they have obviated the basis for each of the objections and rejections. Applicants further submit that in view of the remarks and amendments made herein, the above-identified application should be allowed.